

What's ahead for edible fats and oils in the 1980s?

— More total consumption, spurred by demand for more dietary fats and oils in developing nations.

— Stable or reduced consumption in developed nations where fats and oils now account for more than a third of dietary calories.

— No developments in new sources of fats and oils to rival the palm oil explosion of the recent past, but look for increasing use of soy oil, palm oil and, for dietary reasons, sunflower oil.

— Increasing research and public awareness, if not understanding, of the role of fats and oils in human nutrition.

Those are some general summaries of replies provided by specialists of diverse background to questions about the edible oil outlook for the next decade. The accompanying article provides their responses (not all chose to answer each question).

Persons in developing countries obtained about 14% of their calories from fats and oils in 1974, the Food and Agricultural Organization (FAO) said in its 1977 report, "Dietary Fats and Oils in Human Nutrition." In developed nations, 33.5% of calories were from fats; in North America, the figure was 42.5%. In many developing nations, FAO said, dietary fat provided only 10% of caloric intake.

Fat intake should be increased in energy deficient diets, FAO's report said, to 15% to 20%, with all essential fatty acids requirements covered. While some diets contain up to 40% dietary fat, FAO's report said it might be prudent to reduce the amount to 30 to 35%, "and increase the ratio of polyunsaturated to saturated fatty acids of the diet to 1:1." FAO statistics on worldwide fats and oils intake are shown in Figure 1 and Table I.

	Visible fats and oils	Invisible fats and oils	Total fat plant origin	Total fat animal origin	Total fat	Total calorie supply	Fat/calorie ratio %
Developed Market Economies	58.7	75.7	44.9	89.5	134.4	3333	36.3
North America	65.1	100.0	45.2	119.9	165.1	3492	42.5
Western Europe	65.8	73.0	49.0	89.8	138.9	3411	36.6
Oceania	42.1	85.6	24.7	103.0	127.7	3355	34.3
Others	30.5	40.6	36.3	34.8	71.1	2851	22.4
East Europe & USSR	42.7	66.4	30.8	78.3	109.0	3511	27.9
All developed countries	53.5	72.6	40.3	85.8	126.2	3391	33.5
Developing Market Economies	15.9	20.7	24.3	12.3	36.7	2197	15.0
Africa	15.6	20.9	28.3	8.2	36.5	2118	15.5
Latin America	24.7	32.3	28.7	28.3	56.9	2555	20.0
Near East	24.2	24.2	31.2	17.2	48.4	2464	17.7
Far East	12.0	16.8	20.8	8.0	28.8	2068	12.5
Others	14.6	35.0	25.9	23.7	49.6	2329	19.2
Asian centrally planned economies	8.5	24.5	16.0	17.0	33.0	2331	12.7
All developing countries	13.6	21.9	21.7	13.8	35.5	2239	14.3
World	24.9	36.5	27.0	34.4	61.4	2567	21.5

1/ Percentage of calories provided by total fat as percent of total calorie supply
 FAO Food and Nutrition Paper "Dietary fats and oils in human nutrition."

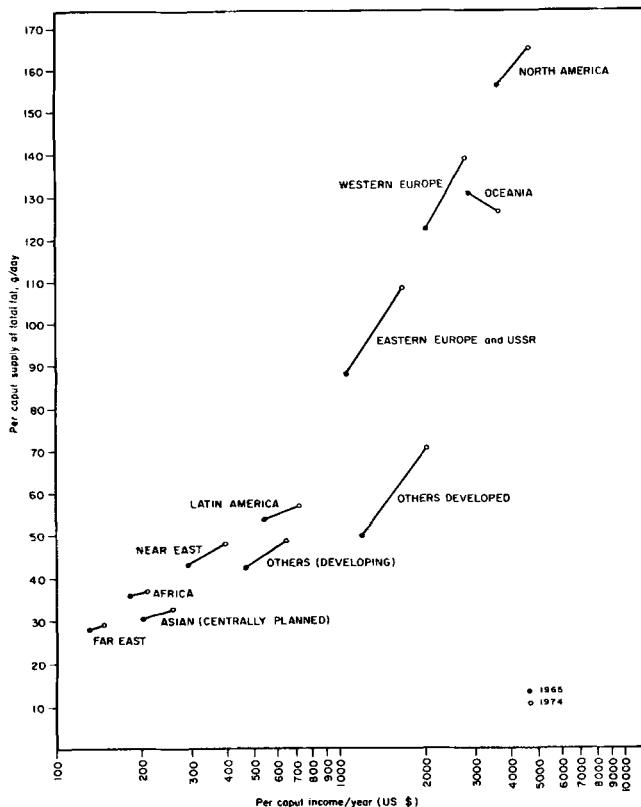
TABLE I

Supplies of visible fats and oils are expected to increase. At the AOCs 69th Annual Meeting last May in St. Louis, USDA fats and oils specialist Alan Holz said that world trends indicate production of 59.03 million metric tons of fats and oils by 1985, compared to 46.58 million metric tons in 1975. Total world exports by 1985 are projected at 19.73 million metric tons, compared to 13.66 million metric tons in 1975, an increase of 44%.

Our specialists all had pretty much the same view of consumers' understanding of the role of fats and oils in nutrition: confused. It isn't necessarily the consumers' fault, however, as many pointed out that the researchers don't agree.

The FAO report concluded with a chapter of recommendations, including 19 research subjects in the field of nutrition.

The fats and oils agenda for the next ten years will be a full one.



FAO Food and Nutrition Paper "Dietary fats and oils in human nutrition."

FIG. 1. Total fat by regions in relation to changes in per capita income between 1965 and 1974.

JAOCS asked some specialists of diverse backgrounds a series of five questions. The accompanying article gives their responses. Participants in the survey were:

Dr. Thomas H. Applewhite – immediate past president of the American Oil Chemists' Society and head of research and development on edible fats and oils for Kraft, Inc., one of the United States' major food companies.

Dr. R.G. Ackman – chairman of the Canadian Committee on Fats and Oils of the National Research Council of Canada; Dr. Ackman is with Canada's Department of Fisheries and the Environment. Participating in preparing answers were the following members of his committee: K.K. Carroll, London, Ont.; B.F. Teasdale, Toronto; M.W. Spence, Halifax; B.E. MacDonald, Winnipeg; R.N. Giroux, Granby; and R.K. Downey, Saskatoon.

J.E. Th.M. Randag – president of the International Association of Seed Crushers.

Joseph R. Smith – president of Agricom International, a San Francisco firm specializing in fats and oils.

Daniel Swern – professor of chemistry at Temple University in Philadelphia, PA; editor of Bailey's Industrial Fats and Oils, and a recipient of numerous awards and honors for his work on fats and oils.

J.P. Wolff – General manager for the Institut Des Corps Gras in Paris, one of the world's foremost research institutions on fats and oils.

Question No. 1

What will be the major factors affecting use and consumption of edible oils during the next decade?

Dr. Ackman's committee:

The answer depends in the first instance on where you live. Even in developed countries, any modest increase in the economic status of lower income groups usually leads to an increased consumption of fats. In the developing countries (e.g., Mexico, Brazil), there will be marked increases in per capita, and especially in total, consumption of edible fats and oils. In the developed countries, total consumption will remain steady as a result of a balance among the following factors: (1) little or no population growth (a possible slight increase in total but not in per capita consumption); (2) a shift away from traditional home meals to domestic convenience foods, including ground and comminuted meats with more fat included, and increased dining out at fast food outlets, both increasing per capita consumption due to composition and cooking styles; and (3) an offsetting decrease in per capita fat consumption due to public awareness of dietary health problems, primarily in terms of obesity, which is an apparent, self-determinable and self-controllable health problem. The public will become educated to the view that a fat intake decrease is an especially effective way to reduce caloric intake. The suggested reduction of fat consumption from the present 40 to 45 percent to about 35 percent may be achieved partly through the above self-discipline process and partly through the public developing a suspicion that all fats must be inherently bad or there would not be so many people crying "wolf."

Dr. Applewhite:

The major factor probably will be the drive to increase dietary calories by the developing nations. Currently, the U.S. and Western Europe consume 40 to 50 percent of calories as fat while the remainder of the world is often under 20 percent. A leveling off may occur in the U.S. and Europe as nutritionists drive home the message about over consumption of fats, health and obesity.

Dr. Randag:

Price is the major determining factor influencing use and consumption of oils and fats. In developing countries there is much room for increasing consumption, depending on the purchasing power. In developed countries an additional consumption of oils and fats is not limited. Furthermore, one should not underestimate the influence of market regulations, such as price fixing in the European Community or in South America (Brazil). These measures could stimulate or reduce consumption.

Mr. Smith:

One major factor affecting use and consumption of edible fats and oils during the next decade is the effect of (U.S.) federal labeling requirements. Already some companies are anticipating the effect on the consumer. One large user has completely eliminated all animal fats from his formulations, and others are considering a similar course. I feel the effects of these moves and the effect of the Senate recommendations on a national dietary program will be to create a much larger market in the United States for liquid vegetable oils such as soybean, corn, sunflower, cottonseed and safflower. Advertising programs aimed at encouraging consumption of higher levels of polyunsaturates also will contribute to this trend.

Dr. Swern:

Use and consumption of edible fats and oils during the next decade on a worldwide basis will depend, to a large extent, on the prevailing economic situation in many of the developing and emerging countries. Although U.S. residents obtain about 40 to 50 percent of their calories from fats and oils, that is not the case in many developing countries, either because of the unavailability of fats or of assets to buy them. Since many of the world's peoples, notably in countries like India and many in Asia and Africa, are calorically deficient, certainly one of the best ways to obtain sufficient calories would be to consume more fats and oils, as they have the highest caloric density of any of our foodstuffs. The major problem may very well be to provide sufficient acreage to grow the trees and plants that provide oilseeds and fruits, and to raise economic standards.

On the other hand, industrialized countries, notably the U.S., U.K., France and Germany, seem to be following a trend in which fats and oils are becoming a less important part of the diet than they currently are. Thus, I would expect a compensatory decrease in fats and oils consumption in developed countries. On balance, however, since there are many more people in the underdeveloped countries than in the developed countries, the prediction is that the overall consumption of fats and oils on a worldwide basis will continue to increase, probably substantially.

Dr. Wolff:

Oil and fat consumption in France during the next decade will be influenced by three factors. (1) The increase in population will cause an increase in total fat consumption. (2) The opinion of medical authorities is that the diet of the population contains too many calories. The excess of calories is not only due to the fats, but it is easier to reduce the amount of consumed calories by limiting fat intake than protein intake. If the public accepts this theory, there should be a decrease of lipid intake in the diet, about the same protein intake and a rise in carbohydrate; the lipid percentage will probably decrease from 40 percent to 33 or 35 percent. The campaign against overeating has a good chance to succeed as the fashion for young people is a "slender look." (3) The campaigns waged against erucic acid and the criticisms against saturated fats by cardiovascular disease specialists have led many consumers to believe that all fats are dangerous. This leads them to limit consumption not only of the specific fats under attack, but

of all fats and oils.

On the whole, in spite of population increases, the total consumption of fats and oils in France should diminish.

Question No. 2

Do any specific sources of fats and oils hold potential for major growth? Why? Will there be a decrease in use of other specific fats and oils? Why?

Dr. Ackman's committee:

World palm oil usage will increase, unless unforeseen disease problems intervene, simply because of the supply available. Soybean oil usage should increase somewhat on a world basis, but specifically more in Brazil, Argentina, the United States and Mexico. The industrial use of soybean oil in protective coatings is steadily shrinking, and technology is moving to resins for reasons of uniform quality and assured long term supply. This will increase availability of soybean oil for edible use. Rapeseed oil usage will increase slightly in Canada and elsewhere, and sunflower seed oil should capture a large share of the edible oil market. All comments suggest that dairy fat use will continue to decline, mostly for economic reasons, but also because of real or imaginary nutritional deficiencies in these fats. Other animal fat usage for edible purposes will decline for similar reasons and because lower prices will encourage industrial use. Marine oil consumption will be limited to present levels, or less, since world production probably has peaked. Introduction of hybrid coconut, which is just coming on stream, will substantially increase the supply base of this oil.

Dr. Applewhite:

If history is a teacher, soy oil and palm oil will continue their growth patterns possibly followed by sunflower. Soy will rise due to continuing demands for protein; palm because of efficient oil production, and sunflower as a high yielding fat source. It has been rumored that the Malaysians plan to go into coconut farming. If they do, perhaps coconut oil will be a growth cycle as well. The main decrease in use of fats and oils may well occur in animal and marine areas. The former will decline with the increasing emphasis on lean meat production and the latter as sources continue to be depleted by over-fishing.

Dr. Randag:

Coconut, palm oil and soybean oil most probably will continue to grow during the next decade. The reasons for growth are that cultivation of these oilseeds is stimulated strongly, whereas soy oil supply will increase by further rise of protein consumption. A drop in usage is not foreseen. However, it might be that fish oil supplies will diminish as fish catching might be more restricted.

Mr. Smith:

I feel the sunflower shows tremendous promise for increased growth in many parts of the world. Sunflower has been a major source of oil in Russia and Argentina for many years. Acreage has been expanding for several good reasons:

- a) Russia developed lines with much higher oil content and increased yield potential during the middle part of the century and made them available to plant breeders around the world.
- b) French and American plant breeders simultaneously developed the male sterile method for economically producing sunflower hybrids. American planting seed companies have surged ahead with this development. Hybrid vigor, more uniformity, and disease resistance have greatly blossomed yield potential.
- c) Agronomists are finding that sunflowers are quite

widely adapted to many parts of the world, and in the past few years production of sunflowers has boomed in widely dispersed areas such as the United States, Spain, Australia, South Africa and Argentina.

- d) Hybrids still in the development stage promise oil contents approaching 60 percent, better yields, much greater resistance to certain diseases and adaptability to later planting in some varieties, earlier planting in others.

Argentina's potential is great, with several million hectares available for sowing and yields expected to double with better production practices and seeds. Governmental policy, which formerly depressed prices below world markets, now ties prices to world markets and encourages export of seed and oil.

A lot of publicity has been given to the increase in the production of palm oil in countries close to the equator. We believe this trend will continue, but more and more palm oil will be going into the countries not as concerned as we are, and will be, with dietary factors. Third world needs can absorb the increases in both sunflower and palm oil as standards of living slowly increase. Undoubtedly production of high labor, intensive oilseeds such as olives and sesame will continue to drop in the next decade.

Dr. Swern:

The particular oil that shows special promise for increased consumption in the future is palm oil, as almost unlimited quantities of the fruit from which the oil is obtained can be grown. Palm oil, when properly prepared, is a perfectly acceptable edible oil, and it is available in enormous quantities in Asia where the great caloric deficiency exists. The increase in the use of palm oil will be reflected in a drop in the use of tallow, currently exported in extremely large quantities from the United States to Asia. Solid fat usage is likely to drop overall. In the United States, many of the important vegetable oils could be produced in much larger quantities if the acreage devoted to such crops as soybeans, cotton and corn were increased; but that does not seem particularly likely in the near future.

Dr. Wolff:

The supply of four fats should become more important in the next decade.

(1) Palm Oil. For its high yield in the plantations and for the competitive price of its oil. Its use in France could increase if new technology allows the production of really fluid oils, in which case the solid fraction will compete with hydrogenated oils.

(2) Soybean oil. The protein shortage in France and in the E.E.C. countries is even more important than the fats and oils deficiency. As the development of the consumption of palm oils will increase, this protein shortage will increase too. This is why we expect an increase in soybean crushings, and therefore of the consumption of soybean oil.

(3) Rapeseed oil. Its consumption decreased sharply after the campaign against erucic acid. Nowadays there is a rehabilitation process for the zero erucic varieties, and there is an outlook in France that the rapeseed cultivation will increase.

(4) Sunflower oil. The present favorable opinion of the medical community on this oil should increase its consumption.

Two types of fats will probably decrease in importance: butter, because of its high price and the harsh criticism it has received from the cardiovascular disease specialists (but this decrease in France will be very slow because of the dietary habits of consumers and of the socio-economic implications related to butter production), peanut oil, unless seed varieties more resistant to drought can be quickly produced, and unless the quality of the African seeds sent to the oil mills can be improved.

Question No. 3

What specific areas of research on fats and oils hold the most promise for increasing consumption during the next decade? Why? Could the constraints on use of any oils be reduced by specific research programs?

Dr. Ackman's committee:

Why should there be growth in per capita consumption of fats and oils in the western parts of the world?

Stronger research support for plant breeding and agronomy, including nonchemical disease control, would be beneficial. Development of rapeseed and soybean varieties with substantially reduced linolenic acid levels could expand their use pattern even further. In particular, underdeveloped countries need crops more suitable for the production of fats and oils for indigenous use. There may, in the long term, be a trend in the developed world toward increased direct use of cereal grains and a decreased use of animal protein, for economic and health reasons. Precedents suggest that in the developing world the converse will apply! Accordingly, the protein component of oilseeds will be of increasing importance to the North American edible oils industry. Research into fats and oils for inedible purposes, including fuel energy, may be desirable.

Dr. Applewhite:

No answer here, and I do not believe research holds the key. It is probably more of an economic problem than anything.

Dr. Randag:

There seems to be a trend to use more oils containing linoleic acid, whereas there might be less interest in products containing erucic and linolenic acid. With rising oil requirements, a higher yield per acre of soybeans, rapeseed and sunflower seed would be desirable, especially if the per capita fat intake in the developing countries is going to increase in such a way that the requirement there for linoleic acid oils also will increase. At present the low value of rapeseed meal diminishes the interest in growing this seed. Elimination of all negative factors from rapeseed would be welcomed.

Dr. Swern:

In my view, areas of research on fats and oils that hold the most promise for actively developing new uses during the next decade are those areas concerned with developing new industrial uses of fats and oils. Increased use of fats and oils for edible purposes on a worldwide basis will develop automatically and does not require much research. As I commented earlier, increased usage of edible fats and oils in developed countries must come from increased industrial uses. Fats and oils have many desirable properties that contribute to their usage in large quantities in a wide variety of industrial applications. Much more effort must be expended in the direction of finding new and expanded uses for fats and oils in industrial applications. Also, as emerging countries develop and become industrialized, fat consumption in industrial uses must increase along with increases in edible fats consumed.

Dr. Wolff:

Oil and fat research over the next decade will most likely be oriented in three main directions: 1) improving the nutritional and functional qualities of the products offered to the consumer; 2) automation of the control and production processes; 3) increasing of safety precautions in fat production plants. The development of nutritional quality is keyed to development of nutritional and biochemical studies, particularly in the area of molecular biochemistry, and to development of production processes which allow a modification in the composition or structure of the fats,

taking into account the results of biochemical or nutritional experiments (trans- or interesterification; truly selective and, if possible, continuous hydrogenation; fractionation providing the possibility to tailor fats for each consumer group by chemical or enzymatic processes).

The improvement of nutritional quality supposes a semi-permanent or permanent control of the characteristics of the products delivered to the consumers; this implies continual analysis of the raw materials and the finished products; the production process is thus tributary to the results of the investigatory analysis.

Safety in plants is becoming more and more of a necessity. Automation of the manufacturing process and the consequent reduction of personnel present in the extraction plants will not be sufficient; only profound technological modifications can bring about maximum safety standards (for example, a water extraction process for oils or with a nonflammable solvent).

Such research could, in a limited way, diminish the consequences of dietary concerns about fat consumption.

Question No. 4

Do you foresee any major changes in extraction processes which have remained relatively unchanged for the past few decades?

Dr. Ackman's committee:

Physical refining is a process ripe for technological improvement since it creates fewer environmental problems than alkali refining. The by-product fatty acids can be of better quality than those from alkali refining.

Dr. Applewhite:

I do not visualize a big change in extraction technology, but there will be a concerted effort to reduce energy requirements. All steps of edible oil processing are ripe for technological improvement. We've been doing the same things for over twenty years. Obviously, we have not arrived at the optimum in efficiency and/or quality.

Mr. Randag:

I am not aware of any major problem in the existing process of extracting oils and fats, although the increasing energy cost also raises the price of raw materials and products.

Question No. 5

How important will dietary concerns fats to be and oils' consumption during the next decade? What type research is needed to resolve current confusion? Will establishment of national dietary goals help or confuse consumers?

Dr. Ackman's Committee:

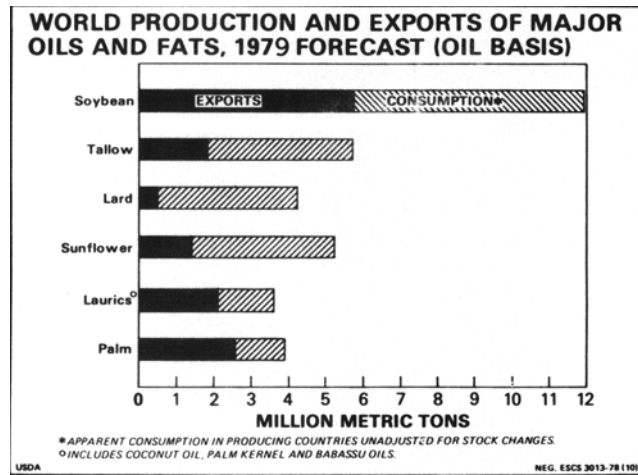
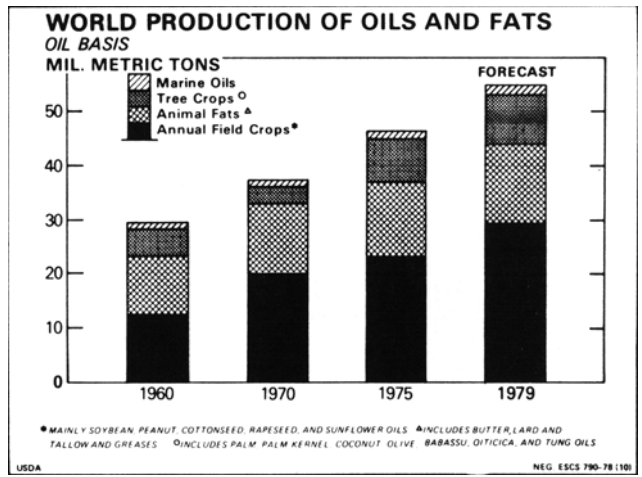
It is agreed there is no dearth of data on the influence of dietary fats and oils on the health of laboratory rats. It is also widely suggested that not only are human consumers confused, but so are most public health administrators and even many scientists. The edible fats and oils industries in the developed worlds have offered the public what it presumably wants, but a well-known dictum is that it is better to spend a dollar on advertising to change public taste than to spend it on product improvement. Perhaps this is one reason why the public at large is suspicious of a conspiracy in regard to edible fats and oils. This in turn leads to a state of such confusion that back-to-back government advertisements on Canadian television can present opposing views on whether eggs should or should not be considered a healthy and nutritious food!

Epidemiological research is the basic need. Since 1900 several major changes have taken place in the public consumption patterns for oils and fats (and almost everything

Outlook '79

Alan Holz: Things to Watch for in 1979:

- Weather effects on Brazilian and Argentinian soybean crops
- Value of U.S. dollar vs. foreign currencies
- USSR soybean purchases
- Soybean oil exports to India and the People's Republic of China
- Increased Malaysian palm oil output
- Lower Philippine exports of copra and coconut oil keeping those products expensive compared to other oils
- EEC developments as butter stocks rise; dried milk powder stocks lower, but still large
- Increased overseas crushing capacity, possibly skewing U.S. exports towards oilseeds rather than products
- More vegetable oil purchases by petroleum-exporting nations
- Stronger meal prices than oil prices if U.S. crushings outstrip usage
- Heavier U.S. exports in first half of crop year before South America harvests soybeans
- Possibly improvement in depressed Peruvian fishing industry
- Continued high meal prices relative to corn within U.S.



Acids in thousand pounds

Month Issued	NUMBER OF MANUFACTURERS REPORTING	FINISHED GOODS INVENTORIES (F)	PRODUCTION (A)	RECEIPTS (B)	DISPOSITION:	TOTAL DISPOSITION	FINISHED GOODS INVENTORIES (F)	
October 1978	18	ON 9/30			Carbide Consumption (C)	Domestic Shipments (D)	Export (E)	ON 10/31

Saturated

FRACTIONATED VEGETABLE ACIDS	Description	Production				Receipts		Disposition		Total Disposition	
		7,888	18,100	1,740	4,205	340	205	12,437	7,300		
STEARIC ACID (40-50% Stearic Content) (1)											
60 C maximum titer & minimum I.V. 5 (2a)		5,251	9,241	-	31	9,334	115	9,480	5,812		
57 C minimum titer & maximum I.V. under 5 (2b)		5,857	8,886	2,800	5,919	8,493	2	14,414	3,738		
Minimum Stearic Content of 70% (2c)		2,333	2,323	-	1,102	1,802	82	2,786	1,870		
HIGH PALMITIC (Over 60% palmitic I.V. maximum 12) (3)		1,846	904	-	385	574	22	981	1,700		
HYDROGENATED FISH & MARINE MAMMAL fatty acids (4)		687	319	-	60	446	1	507	480		
LAURIC TYPE ACIDS (I.V. minimum 5-Secon val. minimum 245-including coconut, palm kernel, tallow) (5)		5,719	8,377	-	3,430	5,348	24	8,808	5,280		
C12 or lower, including capric (6a)		946	1,549	1	103	1,504	100	1,707	700		
Lauric and/or myristic content of 55% or more (6b)		2,433	1,977	336	991	918	30	1,939	2,807		
TOTAL SATURATED FATTY ACIDS		32,760	44,476	4,895	16,232	36,246	581	53,098	29,872		

Unsaturated

FRACTIONATED VEGETABLE ACIDS	Description	Production				Receipts		Disposition		Total Disposition	
		11,431	14,472	805	6,448	216	60	14,391	12,317		
OLEIC ACID (7)											
ANIMAL FATTY ACIDS other than oleic (I.V. 36 to 80) (8)		5,741	11,856	271	2,835	10,110	1,141	13,286	4,682		
VEGETABLE OR MARINE FATTY ACIDS (I.V. maximum 115) (9)		29	17	-	-	18	-	18	28		
UNSATURATED FATTY ACIDS (I.V. 116 to 130) (10)		2,886	4,294	50	494	3,480	442	4,386	2,953		
UNSATURATED FATTY ACIDS (I.V. over 130) (11)		1,872	1,508	-	88	1,855	127	2,080	1,490		
TOTAL UNSATURATED FATTY ACIDS		22,158	32,337	1,135	9,065	23,326	1,770	34,161	21,470		
TOTAL ALL FATTY ACIDS SATURATED & UNSATURATED		54,918	76,813	6,030	25,297	59,572	2,351	87,220	50,942		

Oilseed outlook for 1979: Another record year for fats and oils

For the second consecutive year, world production of fats and oils in 1979 is expected to set a new record, approximately 55 million metric tons, compared to approximately 53 million tons in 1978 and 47.8 million tons in 1977.

Alan Holz, oilseeds specialist with the USDA's Foreign Agricultural Service, made the projections during the USDA's annual outlook meetings in Washington, DC, during November.

On the price side, USDA agricultural economist George Kromer estimated soybean prices will continue strong, in the region of the \$6.50 per bushel price at the time of the conference, at least through the first half of the crop year when more becomes known about the South American Crop. Soybean oil prices may average around 25 cents a pound, while soybean meal should average about \$180 a ton. Kromer said oil and meal prices should be less volatile than a year ago.

Their talks were delivered the second week in November and based on information available at that time. Both talks have been condensed; complete copies are available from the speakers.

OCTOBER 1978 Tail Oil Fatty Acids & Statistics

IN THOUSAND POUNDS	2% & OVER ROSIN CONTENT		LESS THAN 2% ROSIN CONTENT	
	OCTOBER	Percent change from SEPTEMBER 1978	OCTOBER	Percent change from SEPTEMBER 1978
Stock on Hand				
OCTOBER 1, 1978	12,636	+ 53.0	10,575	- 3.8
Production	15,998	- 28.8	13,981	- 8.1
Purchases & Receipts	0	-	0	-
Disposition				
Domestic	16,480	+ 18.2	14,801	+ 13.5
Export	836	- 46.3	482	- 72.5
Total Disposition*	17,316	+ 11.9	15,283	+ 3.3
Net Disposition*	17,345	+ 11.9	15,283	+ 4.8
Total Stock				
OCTOBER 31, 1978	11,189	- 11.4	8,792	- 16.8

*Net - Less purchases & receipts.
Definition: Fatty acids fractionated from crude tail oil having a minimum of 90% fatty acids, not including rosin acids. Primary fractions containing less than 90% fatty acids are classified as distilled tail oils.